COASTAL CONNECTIONS

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COASTAL MANAGEMENT PROFILE

Dan Howard
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Hometown: Fairfax, California
Education: Bachelor of science in fisheries biology, Humboldt State University
Most fulfilling aspect of your job: Working with excellent people from diverse backgrounds, who all have a love for the marine environment.
Most challenging aspect of your job: To remember how lucky I am to have such a great job.
One personal accomplishment you're proud of: My wife and kids still like me (I think).
Things you do in your spare time: Coach youth softball and basketball, cross-country ski, camp.
Family: Wife, Sandy, and daughters, Alicia (20), Molly (17), and Cassie (12).

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THIS ISSUE'S FOCUS

METADATA

"Five years ago, even the word 'metadata' sent shivers down everyone's spine," says John Bocchino, data and metadata manager for the New Jersey Department of Environmental Protection (DEP). At that time, few people understood what metadata were, and to many, it didn't seem worth the effort. But now that data are shared over the Internet, metadata are becoming more important in identifying, validating, and protecting this information.

What Are Metadata?

You've probably heard comparisons of metadata to other types of labels and records—nutrition labels on food, card-catalog entries for books. The descriptive information found on these labels is much like the information contained in metadata. Just as a nutrition label details what is in food, how much, when it was made, etc., metadata tell you what particular geospatial data are about, their accuracy, when and how they were created, by whom, for what purpose, available formats, and any other information a user may need to know. The basic definition of metadata is "data about data."

Why Are Metadata Important?

Metadata are essential for "creating really good detailed descriptions of data sets for both internal and external use," explains Bocchino. But why do you need these descriptions? Metadata help both data creators and users by

- Helping people find the data they need and determine how they can use them
- Preserving the usefulness of data, since all aspects of their contents and creation are recorded for future users
- Indicating how current a data set is and how often it is used
- Estimating data development costs
- Reducing workloads and data duplication

Standards? What Standards?

The Federal Geographic Data Committee (FGDC) created what is called the Content Standard for Digital Geospatial Metadata to provide a template with common terms and definitions for metadata creators and users. This standard defines what content should be included in a metadata record, its organization and structure, and the terminology to be used. Using this standard makes it easier to create, search for, and share metadata since it provides a common language for data creators and users.

Getting Started

Five years ago, John Bocchino was hired by the New Jersey DEP to get an environmental data clearinghouse and metadata system up and running. Now, New Jersey has a statewide office of GIS that administers the New

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Favorite movie: *Philadelphia* (with Tom Hanks).
In your CD player right now: *Deuces Wild*, B.B. King

Living, learning, and working in Northern California all his life, Dan Howard considers himself "very fortunate to find a marine science job in the same area I grew up." He grew up in San Anselmo, which is about 30 minutes north of San Francisco, attended college near the Oregon border at Humboldt State, and now lives about five miles from his starting point—meaning old friends and family are never far away.

But as the busy manager of Cordell Bank National Marine Sanctuary, it's amazing Dan ever finds the time to see his family. The sanctuary is involved in a number of projects, many of which are partnerships with other agencies. "Establishing relationships with our partners allows us to accomplish more with less," Dan notes. An example of one of these partnerships is the work the sanctuary has been doing with others to characterize the habitat of Cordell Bank and estimate the abundance of fish and invertebrates. "We'll be in our fourth field season this year—the partnership has been fabulous."

When Dan does steal away from his work, he's most likely found doing something athletic, such as camping, skiing, or coaching youth sports. And his coaching philosophies rub off on his managerial style. "You need to be patient," Dan explains. "Sometimes you have to let things develop on their own as you provide guidance and trust"—words to work, live, and coach by.

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Jersey Geographic Information Network, a clearinghouse of the state's metadata.

Based on his experiences, Bocchino offers the following advice to organizations wishing to start writing their own metadata:

1. **Get a "buy-in" from your organization.** Once your agency accepts the need to create metadata, it can create a policy or procedure for employees to follow. DEP personnel were "mandated to create metadata," says Bocchino, so it took less convincing on his part to get them into the habit of creating it.
2. **Learn about the FGDC metadata standard.** Once you understand the ins and outs of the standard, you can begin to adapt it and apply it to your own data (see number 4).
3. **Describe metadata in terms your users will understand.** When all DEP employees had to begin creating metadata, Bocchino realized he needed to explain how to do so in their language. Most of these employees worked with geographic information systems (GIS), so he explained it using GIS terminology. Metadata in Plain Language, a U.S. Geological Survey Web page found at *http://geology.usgs.gov/tools/metadata/tools/doc/ctc/*, can help explain metadata in simple terms.
4. **Fit the metadata standard to your organization**. Bocchino tailored the FGDC standard to create a GIS metadata template specific to the New Jersey DEP's needs. The FGDC has also created the shoreline metadata profile to provide the format and content for describing data sets related to shoreline. Find out more about this profile at *www.csc.noaa.gov/metadata/*.
5. **Attend or sponsor training.** Bocchino developed his own training program for DEP employees to teach them about creating metadata. Many other organizations, including the NOAA Coastal Services Center and the FGDC, offer training classes and materials to interested organizations. See page 3 for more information on the Center's training courses.
6. **Explore funding opportunities**. More money earmarked for metadata will help build a more comprehensive program. Bocchino received a grant from the FGDC to help develop his training program and spread the word to the spatial data community. Check the FGDC Web site, *www.fgdc.gov*, or visit *www.geodata.gov* for more information about grants and partnerships.

Bocchino can't say enough about how creating a process for recording metadata—and training people on how to use that information—has helped his agency. "Metadata protects the DEP's investment in data," he says. "Through metadata, we can share our data more easily and cost-efficiently." For more information about metadata, visit the NOAA Coastal Services Center's metadata Web site at *www.csc.noaa.gov/metadata/*.

Good Metadata Practices . . .

- Before writing your final record, organize all of your material.
- Titles should always include topic, time period, and place.
- Acronyms should always be defined.
- When creating keywords, use a variety of synonyms. That way, in a data search, there are more ways to find your data.
- Write simply, but completely.
- Remember the user. Users come from various educational, lingual, cultural, and disciplinary backgrounds. Write your record so that it can be easily understood by a general audience.
- Document as you go.
- Always review your document.

Metadata Tools

There are a number of available software tools to help you write, edit, and format your metadata. For links to more metadata tools, visit the NOAA Coastal Services Center's Web site at *www.csc.noaa.gov/metadata/tools/* or the Federal Geographic Data Committee's (FGDC) Web site, *www.fgdc.gov*.

Creation Tools

- **ArcView® Metadata Collector v2.0 Extension** helps ArcView 3.x users create FGDC-compliant metadata for their geographic information system (GIS) data sets. *www.csc.noaa.gov/metadata/text/download.html*
- **MetaScribe** cuts out some of the steps needed to produce metadata compliant with the FGDC. MetaScribe allows users to set up a template for data records that are very similar in content with few fields or phrases changing from one record to the next. *www.csc.noaa.gov/metadata/text/metascribe.htm*
- **Tkme** helps simplify the process of creating metadata that conform to the FGDC's metadata standard. *http://geology.usgs.gov/tools/metadata/tools/doc/tkme.html*

Formatting and Reviewing Tools

- **Chew and Spit (CNS)** helps format written metadata properly. *http://geology.usgs.gov/tools/metadata/tools/doc/cns.html*
- **Metadata Parser (MP)** checks metadata for technical errors. Once all errors are taken care of, you may also use this tool to publish your metadata. *http://geology.usgs.gov/tools/metadata/tools/doc/mp.html*
- When using CNS and MP, it helps to have a text editor that will display line numbers, as the error files generated by these tools list errors by line number. There are many text editors available, but two are **jEdit** (*www.jedit.org*) and **UltraEdit®** (*www.ultraedit.com*).

XML Schema Tools

The Center has developed two schemata for formatting metadata based on the Extensible Markup Language (XML). You can find ZIP files of both at *www.csc.noaa.gov/metadata/xml/tools.htm*.

- **Annotated Schema** contains embedded human-readable documentation for each XML element taken directly from the FGDC's content standard specifications.
- **Non-Annotated Schema** has the documentation removed from the annotated version. The files are only about one-third of the size of the annotated schema files.

Search Tools

- **Geospatial Data Clearinghouse** is a collection of over 250 spatial data servers that have digital geographic data for use in GIS and modeling software. *www.fgdc.gov/clearinghouse/*
- **Coastal Information Directory (CID)** is a NOAA Coastal Services Center search engine that searches various databases throughout the country for coast-related data. *www.csc.noaa.gov/text/cid.html*

Metadata Training

Interested in learning more about metadata? The NOAA Coastal Services Center offers a variety of courses in metadata creation, validation, and publication. These training sessions provide a solid base from which an organization can begin the process of data documentation using the Federal Geographic Data Committee's metadata standards.

In addition to these sessions, the Center offers a metadata "train the trainer" course for organizations that have a need to develop a training cadre. "Introducing Geospatial Metadata" organizes two days' worth of metadata training into ten modules. These modules can be presented all at once as a workbook or separately as your time and resources allow.

You can download this guide at *www.csc.noaa.gov/metadata/curriculum/index.html*. For more information about the Center's training courses or this resource guide, contact the Center's metadata specialist, Mike Moeller, at *Mike.Moeller@noaa.gov*.

Geospatial One-Stop

Imagine going to one comprehensive Web site for all of your geospatial data needs. No need to imagine it—it's Geospatial One-Stop, an e-government initiative aimed at providing government and the public alike with accurate geospatial data from across the nation. Supported by a collaboration of local, state, and federal agencies, Geospatial One-Stop provides a "one-stop" spot for agencies to find and share spatial data. This data portal can help agencies to

- Share data they develop
- Discover data they need
- Determine whether data already exist and thus reduce duplication of effort
- Learn more about geospatial projects and acquisition already under way
- Find out how to partner with agencies doing similar work
- Standardize data so that they can be shared with other agencies
- Find the information they need to make better decisions

Geospatial One-Stop is working on tools to help agencies create metadata and on collecting metadata from existing servers to share across the data portal. For questions about this site, contact David Stein at *Dave.Stein@noaa.gov*. For more information about Geospatial One-Stop, visit *www.geodata.gov*.

Coastal Connections is a publication of the National Oceanic and Atmospheric Administration Coastal Services Center, produced for the coastal resource management community. Each issue of this free bimonthly newsletter focuses on a tool, information resource, or methodology of interest to the nation's coastal resource managers.

Please send us your questions and suggestions for future editions. To subscribe or contribute to the newsletter, contact our editors at

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NEWS AND NOTES

New York Hosts Smart Growth Conference

The New York Coastal Program and Audubon New York are sponsoring the 2004 Quality Communities – Quality Coasts – Smart Growth Conference, or $QC^2 + SG_{2004}$, on May 25 and 26, 2004, in Albany, New York. This conference and exhibition will offer citizens, professionals, nongovernmental organizations, and local and state government agencies an in-depth look at smart growth, waterfront revitalization, and coastal issues. Visit "What's New" at *www.dos.state.ny.us* for more.

Watershed Training Now Available on Free CD

A set of 44 training modules from the U.S. Environmental Protection Agency's Watershed Academy are now available on a free CD. The courses cover the basics of watershed management, including watershed ecology, analysis, and planning. Visit *www.epa.gov/watertrain/* for more information about the CD and Watershed Academy.

Transitions

Maria Brown is the new manager of the Gulf of the Farallones National Marine Sanctuary… **Debborah Danford** replaces **Jeb Boyt** as team leader of the Texas Coastal Management Program… **Donald Scavia** is the new director of the Michigan Sea Grant Program… **John Taggart** is leaving the North Carolina National Estuarine Research Reserve for the state's parks and recreation department… **Janice Hodge** has left the Virgin Islands Coastal Zone Management Program. **Bill Rohring** is acting manager… **Charles Jones** is now acting director of the North Carolina Division of Coastal Management… **Anne Hale Miglarese** is leaving the NOAA Coastal Services Center to become president and CEO of EarthData, an airborne data collection, mapping, and geographic information systems services company.

Accolades

The **Mississippi Department of Marine Resources** and the **University of Southern Mississippi's Gulf Coast Research Laboratory** recently won the American Fisheries Society's 2003 Sport Fish Restoration Award for their research on sargassum. The partnership won "Outstanding Project of the Year" in the research and surveys category.

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